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I N D E X

P R O C E E D I N G S

MR. OLSON: And we're honored today to have Gareth Phillips as our first speaker this morning, to continue some of that discussion. He could not, for all the flight times and everything, he could not make yesterday.

So it might be a little bit inconsistent with having everything on one day, but he plays a very significant role in the function of emission credit trading and how that works.

Gareth Phillips is with SGS, which is an organization that -- I'll let him explain all the background of his organization. His work involves responsibility for the accreditation of the UK Emissions Trading Scheme, the California Climate Action Registry, and the CDM.

He's been working on the validation and verification of climate change projects and greenhouse gas emissions for six years, and has led validation assessments of many voluntary potential CDM and joint implementation projects. Please welcome Gareth Phillips.

(applause)

MR. PHILLIPS: Thank you very much, Tim. Good morning, everybody, and I'd like to start off

by thanking the California Energy Commission for inviting me to come and present here. When Tim first invited me to come I thought this is a great opportunity to run our training course here in California and have a week in San Francisco.

I then went on holiday, and whilst I was on holiday my colleagues decided to rearrange the training course in Rutherford, New Jersey, so my week in San Francisco was somewhat curtailed.

And not to be content with that, I decided I would have my own input, and through nobody's fault but my own entire stupidity, I managed to miss my flight out of Amsterdam yesterday.

I turned up at the gate five minutes after it had gone, and I'd just been wandering around the concourse, you know, a hundred yards from the gate kind of thing. I couldn't believe it, I felt so awful. But anyway, I was rerouted through Minneapolis, and I arrived here at just after midnight.

So from what sounded like a very pleasant trip to San Francisco for a week has been cut down to just over 12 hours. And I'm afraid I have to duck out at 10:00 to go straight back to

the airport to fly to new Jersey.

But anyway, that aside, I hope that in the time that I have here I can give you an interesting presentation about the clean development mechanism.

Now, because I wasn't able to attend yesterday's sessions, I don't know exactly how much has been covered. So if you feel that I'm going over stuff that has been covered in detail already then please don't hesitate to ask me to move on, and maybe we can take more time for questions if you prefer.

What I'm planning to do is give you a brief introduction to SGS, and then describe the services that we offer, which are validation and verification. And in the context of those I'll talk a little bit about the CDM executive board, the methodologies panel, some of the recent guidance that's come out and some of the progress that has been made.

Then I want to talk a little bit about my own views of the CDM and CER's as a source of funding, and then perhaps take a slightly broader outlook to look and see what we have elsewhere.

So, very briefly, an introduction to

SGS. SGS is an inspection, verification and testing company, what we call an independent company, with no manufacturing, financing or trading interests. And that means that, basically, we have no interest in what we do.

We're asked to perform a service against specification, and we can provide an independent report of how goods or management system or commodities or whatever, stack up against that standard.

The company started inspecting grain shipments back in the 1880's, so we've been doing this for over 100 years. And we now do this kind of thing in about 140 countries worldwide, with a staff of around about 32,000 people. So, in a nutshell, our core service is to facilitate trade by providing confidence through independent inspection.

Typically we would calibrate pumps, so that we can tell you how much oil there is in a tanker, we would assay mineral ores to tell you what the contents are, we test children's toys to make sure that they're safe to play with, and bounce them up and down on the curb until they break to make sure that manufacturers claims are

genuine, and so on.

And of course these kinds of services have plenty of application to the issue of climate change. Consequently, we have our own climate change program, which started back in '97. And that is when I first worked with Marc Stuart, who I think presented yesterday, from Eco Securities.

We worked together on a very interesting and seminal project that was running in Costa Rica, working on avoided deforestation and the protection of forests and so on. And this is when we got heavily into all these sinks issues. Sinks is the term we use for forests.

And it was a very interesting project, and in some ways it's reassuring to know that the kinds of issues that we identified during that project are the ones that are still plaguing the United Nations framework convention on climate change.

And at the forthcoming ninth conference of the parties we hope, finally, we may get some actual decisions as to how to deal with some of these issues we really first became aware of back in '97.

But at the same time we realized that

sinks and forests were only a very small part of a much bigger picture, and since then really we've been expanding into the other sectors. Predominately the energy sector, but also the non-CO2 greenhouse gases.

So my role as Global Product Manager for the SGS Climate Change Program is to ensure that we are registered or accredited for as many of the potential registries, initiatives, trading regimes, and so on as they develop.

And consequently I'm responsible for our application as an operational entity under the CDM, and I've also coordinated our accreditation as a verifier for the UK Emissions Trading Scheme, as well as the California Climate Action Registry.

Now, just to go back to the UK Emissions Trading Scheme, it's quite a significant scheme. The overall achievements of it are somewhat debatable -- the environmental lobbies and the green press have had great fun in taunting the Minister for the Environment on the fact that the emission reductions achieved through the UK Emissions Trading Scheme are not additional at all, they're all business as usual and so on.

So there's been some mixed views of the

UK Emissions Trading Scheme, but from our point of view as a verifier in the scheme, we've had tremendous experience from it. Because really from that we have learned all about how to undertake the verification of greenhouse gas emissions. And I'll be giving you a little more insight into that process a little bit later on in the presentation.

We are a leading service provider to CERUPT and ERUPT, those are the Dutch government initiatives. ERUPT for the joint implementation project, and CERUPT for the CDM projects. Also to the World Bank carbon fund. I gather you had Chandra here from the World Bank yesterday. And also the Danish Environmental Protection Agency.

The reason why we're very interested in this service is because SGS has a lot of inhouse experience that we think is highly propriety to this kind of work, to this process of validating and verifying projects. We have a lot of metering, calibration, laboratories, industrial inspection experience, and so on.

So it's very easy for us, or at least in theory it should be very easy for us to pull together teams of people who can work in a lot of

different locations relatively efficiently land effectively. People with existing expertise that just need to be trained up a little bit to focus their attention on the issues around climate change.

More specifically on our experience, we've validated two -- in fact that's now three, because the one in Moldova is now complete -- so three Prototype Carbon Fund projects in hydro, wind power, and this land use/land use change in forestry project in Moldova.

And we've validated approximately 20 JI and CDM projects for the Dutch government, and so on.

Verification -- we've been very active in the UK Emissions Trading Scheme. We've verified six of the direct participants. There are only 34 direct participants, and there's about ten accredited verifiers. So we have a good market share there.

But also significant, we have three out of the top five emitters. So these are companies that are regularly emitting in excess of five or ten million tons of CO2 equivalence per year. So we've been verifying some fairly large numbers.

And also these non-CO2 process emissions, so you're not just talking about fuel consumption, you're not talking about flow rate times time times concentration and so on as the basic protocol for doing the verification.

So we've been getting into some fairly technical issues. We've also dealt with a lot what we call agreement participants, which are people that are just captured for their energy consumption.

And there may be some similarities or some direct relevance there from the batch certification process that we apply there, to what's currently being proposed in the California Climate Action Registry.

We've done some preliminary verification of some of the Prototype Carbon Fund projects, so this would be -- we have to call it preliminary verification, because the CDM executive board isn't, you know, nothing's approved yet, so we can't call it a proper validation.

But what that means is that we've had a couple of dry runs at actually verifying emission reductions from some of these projects. And unfortunately one of them was, the fuel switch in

Brazil, was one of the methodologies that received a C from the methodologies panel of the executive board, so that's been knocked back a little bit. But nevertheless, we've had a lot of very useful experience.

Now I want to turn and talk a little bit about the services that we provide, and this is talking now about validation and verification. Before I do that I need to just clarify the terminology here.

People tend to use validation, verification, certification fairly freely, but in the context of the Kyoto Protocol and more widely now in the context really of climate change, emissions trading, and so on, the meanings have quite specific meanings. So I just want to alert you to this.

Validation is when you validate a project against a specific set of criteria. And in the CDM those are the CDM eligibility criteria. So that is validation.

You then have verification, which is the actual verification of the numbers of emissions. So the project has to be operational before you can verify it. But you can also verify emissions

from a legal entity or a facility or a corporation or even a country. So it's a verification exercise to check the data.

Certification is, in the terms of the Kyoto Protocol, pretty much a rubber stamping exercise after the verification has been completed. You do the verification, you compare the verified number against the validated number in the baseline, subtract one from the other, and then you certify the number of avoided emissions. So the certification, in terms of the Kyoto Protocol, is pretty much a rubber stamp.

The other term that people tend to misuse is accreditation. And that's one you don't need to worry about, that's our concern as an operational entity or as a verifier, we need to be accredited in order to be, we are accredited as being independent and competent to provide those services.

So if you're using these terms please try to be specific and just be aware that if you mix them up then some people may think you're talking about different things.

So we're going to talk about validation first of all. And as I said, the validation is

the project design documentation, including the definition of the baseline monitoring plan. And these are the requirements that are defined in the Marrakesh Accords, which are very lengthy legal texts that don't make easy reading at all.

But there's one decision, decision 17 of CP7, which is the seventh conference of the Parties, where the rules are defined.

Now the main criteria that are listed in those rules -- completeness of project design documentation and use of approved methodologies. Now I don't know if you talked about the methodologies at all yesterday, I guess that even this far away from Bonn the ripples of what's been affectionately called the methodologies panel massacre reached you here.

When, you may recall, 15 methodologies were submitted. Six received a D, eight received a C, and one was undecided. This was really quite a major setback to all the project developers, because everybody had been kind of approaching this from a learning by doing perspective, saying that, you know, well we'll do this and if we don't get it right then anyway they should allow us to proceed because we've invested a lot of time and

effort in doing this and pushing it forward and so on.

But that wasn't the executive board's approach. They see the methodologies as case law. And, as you know, case law has to be something that is very clearly defined, and that, once agreed, stands for, you know, for all time or until it's superseded by new decisions and so on.

And that, to my mind, is where this disconnect arose between the project developers and the methodologies they submitted, and the CDM executive board. The project developers were looking at learning by doing, the CDM were looking for case law.

So that of course knocked the wind out of the sails a bit, and everybody kind of sat back and reeled a bit, and we've only had a few more methodologies submitted. At the last meeting of the methodologies panel they approved two methodologies. I don't know if you'd been aware of that, one was for hydrofluorocarbon destruction, and the other was for methane.

Now it's quite significant that these are both non-CO2 process emissions. And as I'm sure you're aware, the global warming potential of

these gases makes the projects financially much more interesting, and it makes it much easier to demonstrate that the projects are additional, and to show why the projects are going ahead, because there is no legislation, there are no national programs for these things.

You just do it, and you wouldn't otherwise do it unless somebody paid you money. So it's very easy to prove that these are additional. So there's no surprise that those are the two types of methodologies that are approved. We're still waiting for the methodologies panel to approve a energy-based or CO2-based methodology, and they are meeting yesterday and today. I think this will be the seventh meeting of the methodologies panel.

And I know there are several methodologies in there that are energy-based methodologies. So maybe tomorrow the newspapers or the newsletters will carry some updates on the preliminary or at least on the recommendations from the methodologies panel.

Now if we get that, that will be a big step forward, and will encourage everybody to get started again. If we don't, then we have to wait

until the next methodologies panel, which I think is in the middle of October, so these things will be postponed for another couple of months.

There is one very important piece of guidance that came out of the last methodologies panel meeting, and it was agreed at EB10, the tenth meeting of the executive board. And this was some guidance on how to demonstrate additionality.

And to me this has been a very fundamental piece of guidance that has come out, or technically it's a clarification. But it seems to have slipped past without gaining very much attention. What the methodologies panel did was to write down a list of four tools that they suggest could be used by projects to demonstrate additionality.

And actually this is the thing that has been missing for a very long time. This is what all the debate has been about when people have been talking about financial additionality, investment additionality, environmental additionality and so on.

It's because of the lack of guidance that these debates have been going on. Now

really, defining additionality is something that should have been done even in the Marrakesh Accords, or it should have been done by the executive board, but it's kind of been pushed, the buck's been pushed all the way down the hierarchy until it's the methodologies panel, and, well, they've gone ahead and done it, and it's now working it's way back up the chain.

And the CDM executive board have accepted it without any particular debate or concern, and so we now have some clear guidelines as to how you can go about demonstrating that your project is additionality. And this is very significant.

It's not particularly earth-shattering, it's pretty much what we've already been doing. But the fact that it has been confirmed is I think a major boost for project developers. And I can't remember all four, but one of them, the first, is that you can demonstrate that the project scenario is not the baseline, by using a series of questions that narrow the project options.

In other words, you can pose questions and by answering those questions demonstrate or prove that the project is not the baseline

scenario.

You can do quantitative or qualitative analysis to exclude project options. So again, we're talking now about a quantitative analysis -- this could be a financial analysis that shows that the project scenario is not the most cost-effective. It doesn't yield the highest internal rate of return or whatever.

The third one, I can't remember what the third one is. The fourth one is any of the other barriers applied to small scale projects. And there was originally a list of 13 other types of barriers that was refined down to a list of four, but one of those is any other barrier.

So the fact is there's now a pretty much open field as to how you can go about demonstrating that your project is additional. And I think that, now that has been confirmed, that will make it a lot easier for the project developers to go ahead and prepare the methodologies and their projects, and it will make a lot easier for the verifiers to actually verify this concept of additionality, or -- sorry, to validate this concept of additionality.

Host country acceptance and host country

eligibility. This letter of approval from the host country. This is going to be one of the next stumbling blocks, because not many countries yet are in a position to issue a letter of approval.

We know -- I know at least -- that China and Thailand are two countries that are not yet issuing letters of approval as yet. I'm sure there's others that I just haven't come across.

But when it comes down to preparing a project this is always one of the ones that is really pushed right to the wire, this is always the last thing to arrive is the letter of approval from the host government.

Then these next two points -- project activities additional to business as usual, and project results in emission reductions relative to the baseline. Now, I've talked a little bit about that when I mentioned these guidelines for approving additionality. But there are two key paragraphs in the Marrakesh Accords, in decision 17, it's paragraphs 43 and 44.

And -- I see some of you noting it down, and it doesn't help to go and read them -- because they are contradictory, the interpretation isn't there, it's not possible to know what they mean.

But this is what has come out of these subsequent meetings, is how to interpret them.

But I'll give you my slant on them. There's two paragraphs, 43 and 44, and you need to satisfy both of them to have a good CDM project. The first, 43, talks about CDM project activity additionality. And to my mind this is the additionality that in the past we've been calling environmental additionality. This is the additionality that you can show on a graph.

When you draw a graph and you plot your baseline, as maybe a horizontal line saying that you're emitting so many hundred tons per year or thousand tons per year. And then you draw your width project scenario, and that's a line that comes down below the baseline.

And then you look at the difference between those two emission scenarios. And the area between that graph represents the number of emission reductions that you can generate, okay? That is your CDM project activity additionality.

It's quite possible that your project might emit the same number of emissions as the baseline, or it could actually emit more than the baseline. And in those two cases you obviously

haven't got a potential CDM project to take forward. But it's the ones that come down below the lines that are of interest. So that's the first thing.

Now, the technical issues about how you calculate the baseline and the width project scenario. Those are the details that go into the methodologies. It's the methodologies that tell you how you define the build margin, or the operating margin for the power sector in the country that you're working in.

They tell you how you calculate the average emissions factor for those plans in that country, and so on. Those are the technical details that should go into the methodologies. And those are the details that you use to put the numbers on to the graph that help to determine your CDM project activity additionality. And that's the first thing that you need to do.

The second thing that you need to have is this proof that the project activity is not the baseline scenario. Now this is all tied up with this term "freeriders". The big concern is that people submit projects that were going to happen anyway, they were freeriding projects or business

as usual projects.

So what you have to do under the terms of paragraph 44, is to confirm and to prove that the project activity is not the baseline as usual. So it's not the business as usual scenario.

And this is where this guidance from the methodologies panel comes in. You can now use a series of questions to narrow the project options. So you can start off with, you know, an analysis of the sector that you're working in, you can look at the possibilities for, let's say for building a new power station whether it's coal, gas, oil, or renewable.

And then you can ask questions. For example, you can say what are the internal rates for returns, what is the past history of investment in the country, what is the future projections for the supply of fuel, what are the future price projections?

You can use those kinds of questions to narrow the options, to show that the baseline scenario is not the project scenario. And the project that you're taking forward would not happen.

So those are the two things you need to

have, paragraph 43 and 44. One is a technical evaluation of numbers, using a methodology. The other is really more of a qualitative analysis as to why your project wouldn't go ahead. And those are the things that we would then verify. The answers to your questions are the things that we would verify when we go in country.

Now whether you do 43 or 44 first is up to you. It doesn't matter, but they both must be in place to have an eligible project.

Environmental and social performance, development of an effective monitoring plan. The monitoring plan is of course linked to the -- well, it's important because it enables you to demonstrate your emission reductions. But it's also linked to the methodologies.

And then your national and international stakeholder consultation. Now, if you have all those things in place, and we go through the validation process, the end result would be a recommendation for the validation of the project, and then submission to the CDM executive board with a request for registration.

I think the CDM is the only active project, or active registry, that will accept

projects at this stage. I mean, there are other things, like the California Climate Action Registry, the UK Emissions Trading Scheme, even the forthcoming EU Emissions Trading Scheme, but they don't accept projects.

So the only place that you can put in your projects with an aim to trading the credits is in to the CDM at the moment. But there is still a lot of interest in voluntary projects, and we have been involved -- not so much recently -- but in the past few years we've been involved in the validation of voluntary projects.

Where we're applying the same kind of procedures, same approach, but we tend to focus on scientifically appropriate methodologies rather than approved methodologies. Additionality may be less important, it depends upon the market that you're selling in to. So additionality kind of comes and goes a bit.

And one of the big benefits is that this helps projects that are environmentally appropriate, but that are politically uncertain, particularly the land use, land use change and forestry projects. But you might also get -- dare I say it -- a nuclear project or a big hydropower

project for example that wouldn't be accepted under the terms of the Kyoto Protocol.

Environmentally -- okay, well that's debatable -- but it certainly reduces greenhouse gas emissions, but is not politically accepted into the CDM or the United Nations framework convention. So there is hope for people that are looking for a voluntary project.

There's an active market in voluntary projects. I don't know what it's like here in the U.S., but in the UK and in Europe there are quite a lot of schemes whereby yo can offset your emissions from travel, from employee travel to work right through to corporate emissions.

A lot of event offsetting, you know, where people hold a concert or a conference they buy emission reductions to offset the emissions from that event. That's all done on a voluntary market, and typcialy they're coming from land use, land use change and forestry projects that currently aren't recognized under the CDM.

So I'll move on now to talk a little bit about verification, and this draws quite heavily from the experience that we've gained from UK emissions trading scheme. I've got a few slides

on this with an example, but I'm not proposing to take you through the example, because I think it's, there's probably more interesting things to talk about.

So just a quick overview. The first thing about verification, this can apply to a facility or a legal entity or to a project. And the procedure for doing a verification is very similar irrespective of what size of entity or project you're working with.

We use a two stage process, and this was forced on us let me say by UKAS, which is the United Kingdom Accreditation Service. This was the way that they decided that we had to go about doing the verification. And having worked through it and worked with it I'm now convinced that this is a very good way of doing it, and I hope I can explain to you why.

The first stage is what we call a strategic review and a risk assessment. And this is again, an understanding of all the sources of greenhouse gas emissions from the project or the entity or the facility. And to understand how data on these emissions is collected and handled.

So first of all we go onsite, and we

look around, and we say, you know, what are yo doing, what are all your operations, let's see your list of sources. And we have to make sure that all the sources have been identified. Now when I say "all the sources" that means all the sources that are required under the rules of that scheme.

Different schemes have different rules as to how to deal with very small sources. In the California Climate Action Registry you can have de minimis sources up to five percent. In UK Emissions Trading Scheme you had individual sources of less than one percent.

So if you had 110 sources, and ten of them are big sources and 100 of them are very small, you could exclude all the 100 small ones, even if they added up to a total of 50 percent of your emissions counting. So there's different rules about inclusion of sources.

So we need to check that all the correct sources have been included. Then we need to understand the protocols that you're using to calculate or measure those emissions. And those can be simple protocols, simple activity protocols where you are measuring the amount of fuel

consumed, so the thing we need to measure is the fuel consumption.

Or they can be more complicated, like process emissions, CO2 process emissions or non-CO2 process emissions, where you're typically looking at the concentration of a gas in a flow rate, and the time that that flow runs for. So there's the complete range of the complexity that we need to get into there.

But we need to understand how you collect and handle that data. Because if you've got a guy who goes around with a check board and a clip sheet and, you know, writes down the meter readings and types them into his computer, and then e-mails them to his boss who extracts them and pastes them and transposes them and writes them and writes them and translates them down and copies them and then finally writes a number on a sheet that he sends to the environmental manager.

Clearly, there is a lot of scope for error, for human error, to creep in. Compared to a system where you've got a modem that's downloading half hourly meter readings that's going through a data correction procedure and turning out nice profiles and graphs of your

electricity consumption that we an very easily look at and analyze. Clearly that's a low risk system.

So we need to understand how you collect and handle this data, because it has a big impact upon how we go about verifying it, and how much time we need and consequently what it's going to cost.

The other thing is that we need to decide which of the sources we want to concentrate on. And obviously we're going to target our verification efforts towards the largest sources rather than the smaller sources because that's where the consequences of error or omission are greater.

So once we have this understanding, we define the verification protocol, which says this is what we're going to check, and this is how we're going to check it. And at that stage we're ready to go about doing the verification, which is the second stage -- implement verification protocol, verify data, and report.

And then the whole thing has to go through a technical review, where it goes to a third party. Somebody else in the company who

hasn't been involved in the project, who reads everything and decides whether we are correct in the assumptions that we've reached, whether we were justified in the conclusions and so on.

Now, unfortunately this complicates the costing side of it, because you can give a fixed cost of the first stage but we don't know the cost of the second stage until we've done the first stage, which means it complicates the tendering process.

On the other hand, the subsequent engagements do not require the strategic review and risk assessment. So subsequent engagements are actually cheaper than the first one.

Then the verification results in an opinion, with a number on it. And what's important about this verification process is it enables us to give you a verification opinion with a high level of assurance. In other words, it's a verification opinion that we are very confident in.

And this is something that-- really the significance of this has only dawned on me relatively recently. The use of these numbers, when you take a verification opinion -- either a

government registry or a financial accountants or stakeholders or investors or so on -- will use this information to make certain key decisions.

Obviously the registry will use it to compare against your allowances, and will give you the difference to trade or tell you what yo have to buy accordingly. But financial accountants, and particularly the Chief Financial Officer, will use this information to manage their liabilities.

Now, I have no financial background at all, so really this didn't mean much to me until I heard somebody explaining -- and this is only third hand so I can't quote it accurately -- but apparently, one of the large power generating companies in Germany, when they receive their EU allowances for the EU Emissions Trading Scheme, they'll be allocate on the 28th of february, 2005, when they receive those allowances the capita value of those assets will increase the capital value of their entire holding by 30 percent.

So in other words the value of the emissions allowance is 30 percent of the value of their generating fleet.

Now, over the remaining ten months those assets are gong to be destroyed by the emissions

that the generating fleet create. And I understand that you have to account for the destruction of assets and the creation of assets on your profit and loss account, on your balance sheet, and so on.

So there's going to be an awful lot of financial information. Some very big numbers passing over the books in side a very short period of time.

And I'm sure that the Chief Financial Officer and the financial accountants who sign off on the annual reuprts are going to want to have a very high level of confidence in the number that has come from the verification exercise, before they are prepared to use it. Because the liabilities are so high.

So consequently, what we're saying is this is a very important task that's been done, and the kind of methodology that we have developed for the UK Emissions Trading Scheme, and that all the verifiers in the UK use -- we all have to use the same methodology. We think this is entirely appropriate for the future science of verifying emissions.

So that was the example. I'm not going

to go through the example in detail, because we're a bit short on time I think. I want to talk a bit more about the prospects for CDM to act as a source of funding.

Now, as I said a moment ago, I have no financial background, I'm not at all involved in that. But I have heard some very interesting things said at conferences, and I would like to give you the benefit of some of those things. These are only my views, though, and I'm not in a position to back them up with any hard analysis.

The current buyers -- and maybe you heard this from Chandra yesterday -- the Prototype Carbon Fund and CERUPT treat carbon credits as a byproduct of the project, and they purchase them as an offtake. In other words, you don't get any money from them up front, you only get them after you start to generate your stream of carbon.

Now I think there may have been one or two cases where some money is being provided in advance, but generally the payments are payment on delivery. And I guess, for those of you who are familiar with financing of projects that makes a big difference to you, because yo can't use that money up front and yo can borrow money on the

basis of that.

But the feedback that I've had is that banks are not very willing to lend money against a future stream of carbon credits whilst the Kyoto Protocol is not ratified. And whilst the second commitment period has not yet even been discussed. So you've got this potential revenue out there, but whether you can use it to get project finance is another issue.

The CERUPT projects will soon start to miss their start dates. Most of them contracted to start providing credits, certified emission reductions, on the first of January, 2004. Now there is no way that there are going to be any accredited projects by that date -- sorry, any registered projects by that date.

It could conceivably be the middle of next year before we start to see projects being registered. So they're already going to start running into problems there, which I guess will start to send a message to the financial community.

The prices are low, three to five dollars a ton is what has been paid in the past. And the $5 price tag comes with a guarantee of

delivery, so you're going to have to put some other systems in place to source those credits, just in case you're project doesn't come off. So that's going to cost you something.

And I've heard that the banks are not interested in lending less than $100 million, and they'd prefer $400 million now. consequently, trying to ge the bands to be interested in lending you, I don't know, $50 million or $20 million for a small renewable wind power project in some developing country is not going to be easy.

And that really annoyed me, when this big city banker from London stood up and said they weren't interested in something less than $100 million.

You know, the rest of us are all coping with climate change, and starting to do stuff about it, and changing the way that we work, and it's time they changed their views as well. But that's not the sort of message that you can get people like that to listen to.

The final point there is that the window to generate CER's is shrinking all the time. I'm sure you're fully aware that the cutoff at the moment is the end of 2012. There is no second

commitment yet -- I mean, there isn't formally a first commitment period -- but we assume if ratification takes place there will be.

But consequently there is no value to carbon credits generated after 2012. As time moves on, and you haven't got your project ready yet, it takes two or three years to get it up and running, so, you know, you may be looking at perhaps six, if you're lucky seven years worth of carbon credits, carbon stream, at best.

And as things are delayed further and further, as registration of projects is delayed, that time becomes less.

On the other hand, on the brighter side, the EU Emissions Trading Scheme, they have their proposed linking directive, which will allow CER's post-2008. Now that means you can't sell them to them before 2008, but you can bank them and then sell them, so there is an opportunity to bank. Presumably, well, depending on the kind of deal you can structure, you may or may not get any money before 2008.

By 2008 the major European Union corporations will understand their commitments, and one thing I think is very interesting is that

balance sheet financing may become available.

If I understand that correctly that means that these companies may be prepared to finance projects to generate emission reductions that they need themselves, and they're prepared to pay for that without having to go to banks to get money.

That I guess could have quite a significant impact. But I guess also that most of those companies would then be doing it, because they need the credits themselves. So these credits wouldn't necessarily come on the market, they would simply be transferred directly from the project to the company in Europe.

But that could have quite a marked impact upon the flow of money into the CDM. But from current experience, at least in my view, there's no indication that the CDM credits are going to swamp the Kyoto Protocol.

I don't think there's going to be that much around -- and I guess Chandra would have said this yesterday -- but I understand that the PCF credits have been leveraged off several hundreds of millions of dollars of investment in renewable energy projects.

In order to generate a significant number you're talking about billions of dollars in additional investment, and that's additional investment, not projects that are going to happen anyway. It's got to be new money coming in to new projects in the energy sector. And from what I've heard this money is nowhere in sight.

But if we take a broader outlook, I think the UE Emissions Trading Scheme is particularly interesting. As I say, there is the proposed linking directive, which could have a marked impact upon the demand for CDM credits.

The price that was mentioned in Europe is about 15 euros per ton. That's the price the commissioners want to see because at a price like that it will be encouraging significant domestic action. So that's a lot higher than the current price that's being paid for CDM. So some of those European companies may think well, CDM looks pretty cheap at the moment.

But the other things is that a European Emission Trading Scheme will itself create a significant demand for greater energy efficiencies and lower carbon emissions, etc., because there's going to be 12,000 facilities across the EU who

have their own allowances, and they've got to complete their own inventories and submit those figures, and they're going to be thinking what can we do to reduce our emissions.

And I would think that that's a very interesting market to start to look into ways of reducing emissions from some of the European companies.

North America, of course, presents considerable potential. And we're very excited about the California Climate Action Registry and the talks of repeating the exercise up in the northeastern states and possibly even on the west coast I gather.

Japan and Canada are also likely to embark on domestic emissions trading schemes. In the policies and measures report -- those are the reports that all the parties in the convention have to submit each year, describing what they are doing towards meeting their Kyoto targets.

Domestic emission trading schemes are becoming the tool of choice, and everybody is now saying that we are going to use a domestic emission trading scheme to reduce our emissions. And that, as we've seen, will put the pressure on

the individual companies, and they would all start to take an interest.

And consequently I would think that energy efficient technologies, renewable technologies, will have greater interest in the future, indeed a fairly bright future.

Those are my contact details. I'm very happy to take questions for about 10 minutes, if that's okay. Otherwise, if you have some questions afterwards please don't hesitate to e-mail me and I'll do my best to reply to you. And thank you very much for your attention.

(applause)

MR. OLSON: Are there any questions for Mr. Phillips? Right here, but we'd like you to wait for the microphone, and please state your name.

MR. MEIDAV: It's Tsai Meidav. I was surprised to hear you say that emission credits have no commitment beyond 2012. Do you really believe that there will be less concern or no concern about CO2 emissions after 2012, or would it be the reverse?

MR. PHILLIPS: Well, I think if we can assume that the Kyoto Protocol is ratified, then

we can also expect that there will be ongoing concern. Even if the Protocol is not ratified there will be a lot of concern. And I think there will be great interest in them.

But at the moment, what I'm saying is there is no market for them. I don't think -- I don't know -- but I don't think that anybody would pay you any money now for an emission credit in 2012 or 2013, because we don't know whether they're going to change the rules as to how those things are to be delivered.

I mean, if for example -- it's not impossible -- if for example some of the countries agreed to take on caps in the second commitment period then presumable their CDM projects would cease. So straight off there's a big liability.

MR. OLSON: Other questions?

MR. DUVAIR: Hi, Gareth, Pierre duvair with the Energy Commission. I'm interested in the same kind of question I had yesterday for the folks at the Oregon Climate Trust about the ongoing costs of monitoring and verification, for things like land use projects and forestry.

What do you think, from your experience so far, might be some of the magnitude and the

range of ongoing costs of monitoring emission reductions?

MR. PHILLIPS: The costs associated with monitoring -- and let's be clear, monitoring is the responsibility of the project or the organization that's doing the work -- I think that the costs associated with monitoring are, once you've got the systems in place I think they're pretty much marginal, because most of this is data that you're going to be gathering anyway.

I mean, if you're doing an energy project then you know how much fuel you're burning. You've got most of that information available. Okay, if it's a methane destruction facility then you might not have been measuring your methane that you were releasing previously, if it was just, you know, drifting into the air.

But I wouldn't say the costs of the monitoring are very high. The costs of verification -- and I didn't mention that, I usually do have a slide on that -- if we start with validation, typically the costs of validation for a CDM project you're looking at between 15 and 25 thousand dollars, that's the kind of ballpark figure that we're talking about.

Now for small scale projects it should be quite a lot less than that, but we don't know yet because we haven't done any small scale projects -- in anger as it were.

The costs of verification are more like, sort of seven and a half to fifteen thousand dollars for the first engagement, when you do the strategic review and risk assessment, and then come down to about half that, so three thousand to seven and a half thousand dollars a year for ongoing annual verificaiotn.

But the trouble is, having quoted those costs, there's always extremes. I mean, an oil and gas refinery, with 50 different sources, is obviously going to be more than the top end, and a simple company who's got 12 gas bills that they can show you on a meter isn't going to cost seven and a half dollars. But those are sort of the average middle of the field figures.

MR. POTASH: I'm having trouble understanding what projects could possibly qualify, because it seems to me if a project can't be economic without the greenhouse gas credits, then that doesn't qualify, so a project has to stand on its own. And the only economic mover for

a project has to be greenhouse gas credit economics.

So how does any project qualify except for landfill, gas, methane?

MR. PHILLIPS: Well, I think this is what we're seeing. The first project's that have come through are the ones that have the methane cake, because they're getting 21 or 11,000 times more, you know, value out of the project kind of thing.

But you're right, predominately the justification for additionality I think is going to rest on investment analysis that is going to say that the cost of producing power from a renewable source is, you know, so many cents per kilowatt hour, as opposed to what I can produce from a gas or a coal-fired plant.

I'm able to show that it's less, and then it's a question of what's the carbon worth, does it make the difference to make it worthwhile doing this project. And there may be other reasons as well. Power generators might want to diversify into other areas.

You may accept that the carbon credits don't fully make up for the price difference, so

it may still remain even marginally more expensive to produce your renewable electricity with the carbon credits than if you'd gone for a gas-fired power station. On the other hand, you have got some diversity in there.

But there may be other reasons why projects may go ahead. And I think an important one, not to be overlooked, is the installation of new technology. And there are some guidelines as to what the executive board considered to be new technology.

And this would be, for example, a bigger wind park than has been done before, or bigger turbines than have been done before. So there is a possibility that you could justify some projects as new technology that's being implemented, not something that's been done before. That would then take you away from the financial analysis.

MR. POTASH: It might support non-financial reasons?

MR. PHILLIPS: Yes. So that would be a non-financial reason. That's another barrier, that's a barrier to doing that project. You know, you say I'd like to do this project, but there is a risk here because we've never done anything this

big before, and so for that reason I wouldn't choose it.

But now that I can get some additional carbon revenues and also I maybe get a chance to diversify and that kind of thing, then maybe I will do it.

MR. LEAY: Barrie Leay, New Zealand. Just a followup on the last question, because I think we're perhaps missing the point here. Kyoto is about governments creating reductions. In our case we have agreed to go back to zero emission at 1990 levels, which means we have to do a 22 percent reduction from where our carbon emissions are now.

So in our case, our government, in putting additionality in place, is actually buying back greenhouse gases from producers. So to answer your question, if a wind farm is totally commercial at above ten meters per second wind, then it is business as usual.

But if a wind farm is below ten meters per second, maybe it's an eight meter wind farm and it's located near an urban center,then the government is prepared to give additionality credits, which will eventually be tradable carbon

value.

The government is driving down it's national emissions level to meet it's Kyoto commitments. So it's not an intercompany exercise at all, it is in fact a government and international convention that they have to meet. So governments are going to have to be extremely proactive to actually create reductions in greenhouse gases.

And I think that's really the point that's being missed in this debate so far. It's not really about trading or making money, it's about commitments to the convention to make very serious and significant reductions.

And in the case of countries like Australia, who are not prepared to sign Kyoto, because they are totally caught by generation, the problem for them, even to get down to a plus eight in that, looks absolutely astronomical.

And I think somebody made the point yesterday that there are other companies, like Japan, who are not going to get close to the reductions that their governments agreed to at Kyoto. Would you care to comment?

MR. PHILLIPS: Yes. Thank you. And I

think what you have to do is highlight the difference between the Kyoto Protocol, which as you say is an intentional convention where the governments take on the caps.

The link then between that is -- I mentioned briefly these policies and measures reports. Each year the governments are required to state in a policies and measures report, to the UN secretariat, what they're planning to do to meet their Kyoto target.

And each government, to them it is a sovereign issue as to how they decide to go about that, and clearly New Zealand is implementing a domestic policy to promote wind farms that otherwise would not go ahead. That is a domestic policy.

And the UK Emissions Trading Scheme is a domestic policy run by the UK government to reduce our own emissions to help the UK government meet their target, and the EU Trading Scheme is likewise a domestic policy.

The CDM is an international flexibility mechanism that the parties use to help them meet their commitments, and it is implemented by companies and corporations, but governments can

also do it.

For example, you have the CERUPT Program, which is the Certified Emission Reduction Unit Procurement Tender, that is the Dutch government engaging in CDM projects to help them meet their own targets. So you've got activities at lots of different levels.

MR. OLSON: Okay, Marc Stuart back here.

MR. STUART: Gareth, in regards to your point that the acknowledgment of the additionality terms there is a potential of the implementation of new technologies that have not been used in these particular circumstances and the like.

Don't you run into an immediate problem that the new methodology states that if you're doing something for the first time then you cannot possibly replicate that, and therefore you don't have -- you have to make new methodologies every single time?

MR. PHILLIPS: This is one of the things that we keep on avoiding making the difficult decisions on this being passed down. Because I agree with you, yes, when does a new technology cease to be new.

Do you say, well the first three

projects are acceptable and thereafter, you know, the next three are only 50 percent, and thereafter no more, or do you allow ten of the same. I don't know.

And I think that's a decision that the executive board haven't yet made -- or it's a question the executive board hasn't yet addressed. So I can't answer that.

MR. OLSON: Okay, question up here in front.

MR. BRACHE: James Brache. I have a question. One of the things we've heard a lot about is that a project for additionality wouldn't be commercially viable without the emission credits. But commercially viable can be defined in a lot of different ways. And is there any kind of standard or number that, you know, is generally accepted?

I mean, a ten percent IRR may be acceptable to one company and not acceptable to a lot of other companies. So what's the definition of viable?

MR. PHILLIPS: This is the big problem with using financial tools to try and decide whether things are acceptable or not. The best

one that I've seen is simply a measure of the cost of generation, in terms of cents per kilowatt hour. And compare different options on that basis.

Then you get away from all the issues about internal rates of return and that kind of stuff. And then there would also be some reference whereby we could, as validators we could then look and say, you know, is this a realistic cost in dollars per kilowatt hour when we compare with others to see if these figures are realistic or not.

MR. OLSON: Okay, we're going to close it there. It sounds like we're going to be having future discussions on this.

MR. PHILLIPS: It does indeed.

MR. OLSON: Thank you very much for being here.

(applause)

MR. OLSON: I just want to mention a couple of things before we go to our next speaker. In the lobby out in front there is a table that features an organization that the California Energy Commission is part of. It's the Western Governor Association Border Energy Group.

That is ten border states on the U.S.-Mexico border area. And we have, as a multi-state entity, both countries created a working group to promote what we call the clean energy projects -- energy efficiency, cogeneration, renewable energy development.

Make sure you get their brochure, if you've seen this out here. We do have a website, it's called borderenergy.org. It's meant to help us in some matchmaking in some projects across border. We're right now involved in a handful of projects that we'd like to see as case study examples that can be replicated over and over.

And it's meant to be a business promotion activity. And it's also a bilingual website, and also the publication. Rob Sweede is here representing that organization -- he's in the back. And also take a change to talk to him.

There is an even that we'd like to promote, too. It's the border energy forum, held in Austin Texas on October 23rd and 24th. And that is a cross-border event that is both policy and business development.

I also want to mention that -- someone's talking on their phone, could you -- could someone

take your phone call outside the room?

I also would like to mention that we do have an event this afternoon, which is the U.S. Department of Energy APEC Conference. We'll discuss several activities and business opportunities in the Asia Pacific Economic Cooperation Forum functions, and some of the U.S. Department of Energy international programs.

And so this conference will end this morning and then that other starts at 1:30. We don't have a formal planned lunch, but we do have box lunches if people re interested in that. And if you are interested there is a signup sheet. All you have to do is mark what you want for the box lunch, and you're welcome to do that.

At this point I'd like to go to our next speaker, and then we'll take a break. Our next speaker is James Brache, Senior Investment Officer with the Environmental Enterprise Assistance Fund, which provides mezzanine level financing and co-financing, co-management of renewable energy, energy efficiency, and other environmentally beneficial projects.

Mr. Brache originates and structures private equity investments, and manages virtually

every step to project closure. He previously worked as a Regional Manager for the Asia and the Middle East sections of the Overseas Private Investment Corporation, and also as a consultant for the InterAmerican Development Bank.

He holds an MBA from Boston University, and a BA from Georgetown University. Please welcome James Brache.

(applause)

MR. BRACHE: Thank you, Tim, and thank you everybody for being here. And I'm grateful to the Commission for inviting me. I've found this to be a very informative conference. Actually a lot better than a lot of the big name conferences that you go to. There's a lot of substance here, so it's been a real pleasant surprise.

I'm going to talk about Environmental Enterprises, what we do, and some of our programs, a little bit of our history, and all that, a couple of projects that we've done.

But then I'm really going to spend the bulk of my time talking about a solar photovoltaic fund that we co-manage, because I think that's probably of the most interest to a lot of the people here. It's really what we're spending the

bulk of our time doing now.

Environmental Enterprises is kind of a unique character out there on the marketplace, because we're a non-profit, actually. We were started in 1990, with impetus from Winrock, which is -- Winrock is Winthrop Rockefeller, that's where the name comes from. It's also a non-profit that does a lot of things both in the United States and internationally.

And Winrock promotes development in developing countries through technical assistance and finance and other ways. But one of the things that's recognized at Winrock is that there was a need to provide financing for small companies, in particular in the environmental sectors.

And so we were created to try to fill, on a very small level, that financing gap for environmental companies in developing countries. Our mission, as you can see here, is to move the concept of sustainable development from theory to practice by mobilizing capital and management support for these types of companies.

This gives you an idea of what some of the target sectors are for environmental enterprises. Rural energy, obviously, energy

efficiency, sustainable agriculture -- which primarily means organize agriculture -- nature tourism, although I would say we don't do nature tourism any more, we found those projects hard to make commercially viable on any significant scale.

Forestry and non-timber forestry products, pollution abatement, etc. etc. And this next slide gives you an idea of what our current direct investment portfolio looks like. So as you can see, renewable energy is probably the single largest. Part of that, 30 percent, and with the rest of it breaking out as shown.

So what we've got right now at Environmental Enterprises are our Direct Investment Program, which consists of all those different sectors. They we kind of evolved over the years to become a fund manager.

And currently we've got two funds under management. A Central American fund, Corporacion Financiera Ambiental, which is a $10 million fund with, MIF was the anchor investor. MIF was mentioned by Rick Renner yesterday, it's part of the InterAmerican Development Bank.

And so we manage a $10 million fund which can invest in any type of environmentally

beneficial project in Central America. And we have a wholly owned Costa Rican subsidiary that really manages that on a day-to-day basis.

And then in addition we've got the Solar Development Group, which is a $36 million global -- when I say global I mean emerging market country global -- facility. And that's what I'll talk about later.

In terms or renewable energy, I'll just focus on that sector. Environmental Enterprises over the years has made -- and this is primarily under our direct investment program -- 21 investments in a variety of different types of renewable energy projects and energy efficiency projects, including solar, small hydro, biomass, and energy efficiency.

And just to give you a breakdown on what some of those were -- six of the projects were in solar, four were hydro, one was biomass, and then a few of those were energy efficiency projects. Most of these have been in Central America, with a few of them being in Indonesia.

And the breakdown of debt versus equity, about two thirds was debt and one third was equity. I guess I would also make the point that,

in the original program it shows that I'm going to be talking about venture capital.

Environmental Enterprise does do venture capital, although I would just say that we make debt and equity investments. Because it's not venture capital in the classic form where venture capitalists are typically looking for returns of 30, 60, 80 percent.

We never, you know, dreamed of making those types of returns, and it's not possible to make those types of returns in these countries and in these sectors. You just don't get those kind of returns. So venture capital is a bit of a misnomer for what we're doing.

So it's really mezzanine financing, debt and equity financing, for SME's, for small and medium-sized enterprises.

Some of the challenges that I think are particular to small energy projects -- and we've heard a lot about those already from other speakers, but I think that are particularly difficult for small energy projects are construction risks, that's a challenge for any energy project, but if you're a small project, a five megawatt project, you can't go out and hire a

EPC contractor like Bechtel or somebody to come in and do a turnkey contract.

First of all, Bechtel is not going to be interested in it, and secondly you can't afford the additional costs that are associated with EPC contracts.

And yet, if you're trying to source financing from an international financial institution like the IFC or CDC or somebody else, they often look for EPC contracts, because that's what they're used to, and that's what they're comfortable with.

And if you don't have them then they get very concerned about the construction risks, and is something going to go wrong and who do we turn to. So these are some of the challenges that these companies face.

Technology risk, that's pretty self-evident. But especially if you're trying to do a new technology, and we get lots of business plans with new technologies that are going to change the world -- and I guess we're pretty skeptical at this point -- but we try to look at those, because we are trying to advance the movement, so to speak, in these alternative technologies. And yet

we're also very private sector oriented. We won't invest in a project unless we believe it's commercially viable.

Offtake risk is obviously a big risk for any power project, but I think that if you're a small developer, a small producer, offtake risk is even more of an issue, because if you're -- if the national utility that you're selling your electricity to doesn't pay you, your pockets aren't as deep and you can't last as long.

You also don't have the political influence to turn things around if you're in a dispute with the electricity utility. So it's one of the challenges that small projects often struggle with, and often leads to their demise.

Sponsor and developer risk. Again, a lot of what we see are a bunch of engineers that used to work for the national utility, or used to work for engineering companies. They get together, they have a great idea, they want to develop a nice project, and as individuals they've got a great track record, but this may be their first project putting together a new project company.

So, again, we often face companies that

don't have any track record as a company. They have a track record as individuals. If you're an AES or a CMS, and you run into political projects, or, as people talked about yesterday, if the project takes four years to develop instead of two years as you anticipated, if you're a CMS you can afford that. You may not like it, but you can afford it. You know, you've got the U.S. parent company back home.

But with a lot of these small developers it's really hard for them to do that. And then, for energy efficiency deals, this is another case where we've seen a lot of difficulty for energy efficiency deals, because it's often a cash flow negative business for the first two years, until you really get up and running. And I'm talking about your ESCO's in particular.

I thought I'd talk about a couple of our experiences with some energy projects that EEAF has done. One success story is Energia Global, I think a lot of people are familiar with that. We supported Energia Global at the very beginning of their formation, really.

And a couple of things they went on to do was to develop two 16 megawatt run of the river

projects in Costa Rica. They signed long term PPA's with the national utilities in Costa Rica. And this is really true, it's one of the first IPP's in Central America that got built, and Energia Global was a pioneer for sure.

The risks were things we've already talked about and you've heard from other speakers, so I won't really go into that. And this was our participation.

In 1991 we provided $100,000 -- which in these days is sort of a pittance -- in the form of a subordinated loan for working capital and expansion of operations in Energia Global. And this was really a key to helping them get started.

We structured the debt with a warrant which gave us the option to purchase some of the shares. And Energia Global was originally going to get into the energy efficiency business in Costa Rica, as well as develop some hydro projects.

The energy efficiency business didn't really work out for them, but fortunately the hydro projects did. They went on to expand into wind and into other Central American countries -- Chile. And eventually, you probably know,

Energia Global was sold to CHI Energy in 2001. And then we were able to, through that sale, exit our investment in 2002.

I kind of use this as an example because this is one of the few equity investments -- and we made quite a few equity investments in not just renewable energy but other projects -- that we've been able to exit. That's another challenge of investing in small energy projects in developing countries, especially if there's equity. They're extremely difficult to exit.

And you can structure things up front like puts and all that, but if the cash flow is not there, a put doesn't have much value. So this is a company that was truly a success story, and we were able to exit. But if you'll notice, it took over ten years to go from start to finish.

Another case study -- the first one you could say was a success story, this one I think you can say is an unfinished story. This is a solar distributor. This is a great company in a lot of ways. They're operating in the Dominican Republic.

It's a great company because it's an entrepreneurial vision to go out there and try to

make solar PV business really work in a world market where there was a real need. And in that sense they were true pioneers. Their target market was northeastern Dominican Republic.

What they were doing was selling both equipment and rental sales to rural customers. And by rental sales I mean they would package together a PV system which would include the panel, the battery, and the balance of the system, and go out and say to these residential customers here, you don't have any electricity, we will essentially give you a system, and you pay us anywhere from $12 to $17 a month and you have electricity.

And that's something that was affordable. It was a way to get systems out there. And for those who could afford a PV system that might cost $600 that was great, they loved to make those sales as well. But in the DR and rural DR there's not a lot of people who can plunk down $600 for a system.

One of the things they did was, because much of their financing was coming in the form of dollars, they denominated their contracts in dollars, which was good because it protected them against devaluation risk, but -- as I will talk

about later -- it also has it's downside.

The company's got excellent collection rates, and one of the things they did was, they've got a system whereby they've got a bunch of representatives out there in the field that go out and collect form people. They also use little tiendas, little stores, in certain areas where people are going to come to anyway and have those be collection points.

So they really worked out a lot of issues associated with rural electrification. And they installed over 1,200 systems in the DR, which is a fairly significant number for this type of company.

Our investment is that we provided a six year loan, $200,000 unsecured, with a conversion feature to allow us to convert part of that to equity at a predetermined price. We also made a $75,000 loan to the U.S. parent company. Because our $200,000 loan was directly to the Dominican subsidiary.

Now, unfortunately, it hasn't worked out as planned. I mean, the company is still in operation and they're still providing services, but they continue to struggle, and they're not

current on their debt service.

Some of the problems they face are high churn rates, which is a loss of customers due to grid expansion or for a variety of reasons, but grid expansion is one of them. Another reason that's a current problem is that, you may know that in the DR there's been a huge devaluation over the last six months or so due to a financial scandal in the banking sector.

And as a result, people who could afford $12 or $15 a month in dollar terms, their pesos are worth a lot less now, and they can't afford those kind of rates any more. So, while getting people to pay in dollars was good in terms of devaluation coverage for the company, it also meant, in this type of situation, they've lost a lot of customers now.

And so that goes to limited ability to pay, especially in the case of devaluation. Some of the lessons that we've learned is that they really need to expand their market beyond just the rural customers. They also need to expand the financing operations.

And one of those is to use micro credit, and to team up with a micro credit supplier so

that people can finance the purchase of their systems through a micro credit financier or supplier, and that the company doesn't have all the risk of this on their balance sheet.

Another thing is to diversify their product line to take advantage of established distribution channels. And what I mean by this is, their main business has been solar PV systems, but one of their advantages is that they developed these great distribution systems out into the countryside, so what they need to do is to sell not only PV systems but perhaps, you know, refrigerators that might be powered by PV panels or LPG or any other type of product.

And presumably is would be environmentally focused, but not necessarily. I mean, even if they sell gas stoves that run on gas canisters they need to take advantage of that to diversify their revenue stream.

There's also an important thing for this type of project to have, an enabling environment in the country. And by that I mean a regulatory environment that encourages these types of investments and/or subsidized financing sources. Because this company borrowed from us, and frankly

our finance rates, our interest rates, are not low.

I mean, we're charging rates that are adjusted for the risk of the company, and this company is actually fairly risky. So the rates that we were charging were in the kind of 12 percent range. And for this type of project, frankly, that's a pretty high rate.

And they got some other financing that was equally high. So if they can tap into World Bank financing that is maybe two percent or something like that, it makes them more viable.

I want to switch to the Solar Development Group. This is a fund that we co-manage. This is a $35 million solar PV fund, and it's target market are emerging markets or developing countries. The Mission is to accelerate the growth of offgrid renewable energy with a focus on PV technologies.

Now, there is a focus on PV, but we can also do other types of renewables, but they have to be limited to about 15 percent of the total fund. So there are other options besides PV.

This gives you an idea of what the structure looks like. You can see that

Environmental Enterprises, as I said, is a co-manager. Our partner is Triodos, which is a Dutch bank and fund manager. And then the fund manger that we jointly formed is called Stichting Triodos PV Partners.

The source of funding comes from different sources. And I guess what I should say first is that SDG, Solar Development Group, is comprised of two pieces. Solar Development Foundation, and Solar Development Capital. So you've got different sources of funding for each of those entities.

And Solar Development Foundation was launched in March of 2000. It's a ten year program. $14 million available to invest or disperse. We provide grants on low interest loans, anywhere from as low as $5,000 to $150,000. And this is funding that can be used for business development services, it can be used for feasibility studies for market assessment, or for technical analysis.

The idea here is that this is money that would go to entrepreneurs that are trying to do a solar project -- or again, like I said, in certain cases other renewable type projects -- to help

them determine whether they've got a viable plan here for getting into the business.

Now we wouldn't just do this with any Tom, Dick or Harry that walked through the door. It would have to be somebody that had some kind of track record, some experience. But it doesn't need to be -- it's obviously not going to be a Shell or a big player. The idea here is to help build the solar business in these countries, the solar industry in these countries.

In addition to grants and low interest loans we provide business development services in the form of -- which, you know, can be technical assistance and other things. Oh, and if we don't provide the services directly we can provide the money for the company to go and hire a consultant for example.

Solar Development Capital was launched a year later. It's also a ten year fund. And it's $21 million of capital. The investment range is $100,000 up to about $2 million. If we're making an equity investment it has to be a minority investment. In other words, Solar Development Capital would never own more than 49 percent of the company. That's one of the covenants in our

fund agreements.

We can also invest in convertible debt or senior debt. So those are the different forms. This will give you an idea of who some of the investors are in our solar development fund, and it's different than who you have in Solar Development Capital.

So you've got Cortaid, which is a Dutch development organization -- you've got the list, I won't read it off to you. But as you see it includes a number of foundations and the like. SECO is a Swiss government development organization.

And Solar Development Capital, it's kind of a different mix. You've go AstroPower, Calvert World Ventures, Cortaid, again the International Finance Corporation, the Global Environmental Facility, Environmental Enterprises -- we've also made a small equity investment into the fund, and a number of others that are listed here.

And then, okay, our market of Solar Development Group. As I mentioned before, our focus is on developing countries, rural areas unlikely to benefit from grid extension. Serving a lower income group, and a geographically

dispersed customer base.

Now, if you think about it, and you go back to the lessons learned on the solar project that EEAF financed directly, this is not an easy target market, frankly, to serve, because there's a lot of issues here. You're trying to find good solar companies that are serving a rural base, and you're also trying to do this on a commercial basis.

Which is one of the reasons why Solar Development Foundation is there in the first place, it's the recognition that a lot of these projects may not be viable without some sort of assistance that is either subsidized or with a grant money component to it.

The target enterprises for SDG are energy service companies, companies with complimentary distribution networks -- again I refer to that. But one example of that might be a company that sells farm equipment, and therefore it's already got a rural customer base.

And now they're going to sell solar PV, which might be for water pumping or it might be just for electricity generation, or for a rice mill or whatever.

It can also include manufacturers or assemblers of equipment, and retailers. And it can include financial institutions, like micro-credit finance institutions. And we're working with one of those in Bolivia, and we're working with one of those in Sri Lanka, or we hope to soon.

This gives you a schematic of how things work. Solar Development Foundation can provide money and business development assistance to projects. Solar Development Capital kind of picks up where Solar Development Foundation leaves off, and provides commercial financing and equity investments.

And I should make it clear that a company that receives money from Solar Development Foundation doesn't necessarily qualify, or will not necessarily get money from Solar Development Capital, unless it proves itself that it's commercially viable.

And likewise, Solar Development Capital can invest in companies that never received any support from Solar Development Foundation, but the idea is that Solar Development Foundation will provide a pipeline of sorts for Solar Development

Capital.

This kind of gives you a life cycle of how things would work. And we would do a company screening -- and you'll see on the right hand side that Solar Development Foundation is covering all these things up until kind of the investment by Solar Development Capital. I don't need to explain that really, I think it's self-evident.

Then I thought it would be useful for people to know, if they were interested, what some of the evaluation criteria are for the foundation. First thing would be we look for a suitable investment climate in the country, that's friendly to solar development, where contracts are respected and the like, the legal framework is workable.

All the things that you already know about. We also look for a market where sustainability is indicated, where there's a customer willingness or ability to pay. We look for management capacity within the entrepreneur, and a financial commitment on behalf of the entrepreneur.

They've got to be really committed to this. There's got to be a certain level of

technical capacity within the entrepreneur, or they have to have sources of that. If they primarily come from the marketing side then they need to be able to tap into somebody from the technical side for example.

And I won't go through all of these, but, you know, social or environmental considerations is something we'd obviously look at. Replicatability is something we'd also look at.

A bit about the SDF process. The first thing we would do is try to get to know the business, so we would do an assessment of the management and the market potential in the country.

We'd look at what the company needs to do to scale up for their operations. And then how can we fit in, how can we really help these guys. And maybe it's not money, maybe it's technical services that we provide that's what they really need the most. And sometimes it may be hooking them up with good partners elsewhere.

For Solar Development Capital it's similar but somewhat different. Criteria are like for any lender really. We look for a track record

of successful operation. We look for a financial plan including, you know, what are they contributing and where are they going to get the financing that might be in addition to SDC.

A realistic business plan. We'd want their to be a sufficiency upside return potential. Now in the return we're looking for is not that high, but it's in the 7 to 12 percent range, which is not that high for an investor developing in developing country companies, and yet it's still not that easy to do, for solar PV companies or renewable energy companies in developing markets, especially those focusing on rural areas.

A credible exit strategy. And of course that's a lot easier said than done. And we would need to to our standard due diligence, but I would say our risk appetite is a little different, obviously, than what you're going to find from a typical commercial bank. We're willing to take on more risk because we recognize that we need to.

So this gives you an idea of what the ideal company profile would be. Now there's not a whole lot of ideal companies out there. So this is not a must-have list, but it's some of the companies we'd like to work with.

An active entrepreneur with his own money, revenues of perhaps a million dollars or more, with some full-time employees, clean balance sheet, etc. etc. You can read the slide, I won't go over it all in detail.

This slide talks about the investment process. Again, I'm not going to go over all of it. You can read it later. But, you know, we would look at obviously the company's business plan, their legal structure, operations management team, the track record and all that, size of the market, financial statements.

Here is says we look at historical and current financial. One of the problems we've found is that a lot of companies -- they might be good companies, they might be family-run companies -- they often don't have audited financial statements going back three years, it just doesn't happen.

And so we recognize that. Of course, we would prefer to have audited financial statements going back five years, but it doesn't happen a lot of times, so we're flexible on that.

Once we've completed the financial inquiries and we're comfortable with the company,

we would negotiate the investment and work with the company to implement their business plan. Partly because we have investors like the IFC and the Global Environmental Facility and other development organizations, and partly because it's just good business, there would be ongoing monitoring and advice nd support provided to the company.

One of the things we need to do is report back to our investors about the company, not only it's financial performance but also the company's environmental performance and the impact of the company on the surrounding countryside.

We're working to try and build strategic value, which of course goes to exit. So that if we could perhaps sell this burgeoning solar company to a Shell or a BP or whoever might be out there in the country that's looking to expand their operations.

And that's really pretty much that. Here's my contact information. We're based in Arlington, Virginia. You've got our phone number and fax here. The web site for Environmental Enterprises -- actually, you can't see it but it's www.eeaf.org, and the website for Solar

Development Group is www.solardevelopment.org.

Now our partners, Triodos, who are based in Holland, if you go to our website you'll get a link to their contact information as well. And what I would say about them is that we handle Latin America, Triodos handles Africa, and for the most part they handle Asia as well, although we've done some work in Asia.

So, I'd be happy to take any questions.

(applause)

MR. OLSON: Are there any questions? And please use the microphone.

MR. KEITH: My name is Robert Keith. My question is you, as in EEAF, are a non-profit. How do you measure success, and with particular regard to balancing the impact on local people, the environment, and financial success?

MR. BRACHE: Well, we measure our success on the financial side -- in order for us to continue being in business we measure our success partly by are the investments that we're making commercially viable, and do we get repaid, and even though we're a non-profit and profits we get go back into the kitty to be invested elsewhere. So that's one way we measure it.

We measure success in other ways -- we're trying to be a demonstration vehicle. In many cases we've supported projects that were done for the first time in a country. And so we hope that we can support an entrepreneur who's doing -- be it a renewable project or an organic farm, we've invested in an organic farm in Chile -- that will encourage other people to do the same.

To say, well, hey, if this guy could do it, then I can make it work. And maybe they can make it work even better. So we're trying to be a catalyst in that regard.

VOICE: In our programs we try to do a lot of linkage with what we generally say is productive end use. Can you give an example -- say from your Dominican program -- where people installed PV panels, and then did something that could have a kind of productivity multiplier that came out of that investment?

MR. BRACHE: That's a good question, and unfortunately we have not gone out and measured that. I mean, we know it exists, but we haven't gone out and tried to quantify the corrective end uses. It's probably something we should do. By the way, there's a cost for that, and we're not

really in a position to afford that.

Now, to a certain extent, Solar Development Group, because of it's mandate, because of it's funding sources, it is measuring. It has an obligation, actually to measure the effects on a number of levels of the investments we make.

And so for any investment that Solar Development Group makes there are evaluations that are done at different times during the life of the fund, which measure, among other things, some of those things.

But we're kind of too early yet in the Solar Development Group to have measured any of these impact steps in a real quantitative way. But I think it's important so that you can qualify them, so you can tell the message and all that.

MR. STORMENT: James, two questions. You mentioned that you-all had invested in 21 projects to date, since 1990, since the inception. What is the total dollar amount that you-all have invested so far?

MR. BRACHE: Well, I should qualify, those 21 investments were made by Environmental Enterprises, and actually don't include what we've

done with Solar Development Group, which I think I forgot to mention.

But it's a relatively small amount, about three and a half million dollars were invested in those 21 investments. For Solar Development Group, they've approve $6.2 million so far into 53 different companies in Africa, Asia, and Latin America. Of that amount, about two thirds was debt and one third was equity.

Solar Development Capital has approved about $3 million in funding, for four projects in Bolivia, India, Mexico, and Singapore.

MR. STORMENT: Last question. As far as, you were mentioning kind of the ideal client. We're looking at a project in northern Mexico which I mentioned to you briefly last night.

Have you-all ever done any type of financing with a special purpose corporation that was set up specifically for a project to oversee a self-generation project in a rural -- not offgrid -- but in a rural, remote region of a developing county where they're looking to start a self-generation project to provide for their own municipal power needs, cost saving, getting off the grid --?

MR. BRACHE: Well, we've certainly invested in special purpose companies that are set up purely to develop a project, that doesn't have all those attributes that you mentioned. And that wouldn't be a problem. In fact, from what you told me about that it's sounds very interesting and something we'd be talking to you about in more detail.

So I don't think that would be a problem. In terms of structure we try to be pretty open-minded in terms of what we can invest in. We need to have an ability to exit at some point and all that.

One of the problems, again, this is a small enterprise challenge, is that sometimes -- for example, there's a project that we've invested in Bolivia, which was owned by an entrepreneur and some family members. Before we could make our equity investment in that company the whole company had to be restructured legally.

Simply because when it was originally set up it wasn't set up to receive outside capital. So that's something that often takes extra time, and it's extra cost involved. And the extra cost might be financed to a certain extent

by some money from Solar Development Foundation. But it helps prepare the company for an investment by Solar Development Capital.

MS. GRAHAM: Shannon Graham. My question is about emission reductions. I'm wondering if at any of the projects that you're looking at -- do they have the scale, or do you perceive that they could have the scale -- to produce sizable emission reductions?

MR. BRACHE: To date I'd say that we haven't supported anything that would have sizable emission reductions. They all have the potential for emission reductions, although really, if you think about it, most of these are rural electrification, where there wasn't any electricity before. So they're not necessarily offsetting some polluting source.

But certainly that could be the case in the future. And with some of the investments that Environmental Enterprises is for -- you know, small hydro projects, biomass projects and the like -- those certainly have had emissions reductions.

Not of a huge scale, because none of the projects were particularly large, I mean we're

talking about projects ranging from one megawatt to five megawatts. And so nothing's been on a real big scale.

MR. OLSON: Time for one more question.

MR. WAGNER: George Wagner. I have a succinct question in sort of a hybrid issue. We just won a grant to develop down in Teohuanapec, which is on the border of Guatemala. And I'm not sure if that fits into your Central America situation.

They wanted us to come down to find out if our turbines are the ones that can succeed in the high wind turbulent area. We're sure they can, because they've been checking out for years, but we have the money to go down and research it, but the Mexican government will give us a "platform", in other words all the infrastructure. We have to put up test turbine array.

It's going to cost us around a million and a half U.S. dollars. That would be a pre-project or a larger project conventionally for the Chiapas area down there. Now is that fundable through something like what you're talking about, or is that, should I even waste my effort going after it?

MR. BRACHE: Well, it's worth talking about. I think it might be a bit of a stretch, because the money we have available for fund feasibility studies is, right now, through Solar Development Foundation, which has a limit of about $200,000. That would be the maximum we could provide.

So it might be one source of financing for that. Although that would be, for us, to give the kind of maximum amount for a non-solar project. I'm not sure how that would be received by the Solar Development Foundation board.

Something we could kind of run up the flagpole without too much work and get back to you on it, but it's not a natural fit, if you know what I mean.

MR. OLSON: Thank you very much.

MR. BRACHE: Thank you.

(applause)

MR. OLSON: At this point we're going to take a ten minute break. And again, if you're interested in the box lunches please sign up in the table out in the lobby.

(Off the record.)

MR. OLSON: Back on the record. We're

going to start our session again here. If we could come into the room, we're going to start our session. We're going to continue the project financing conference.

Our next speaker is Henry Steingass of the U.S. Trade and Development Agency. Which -- for people who are not familiar with that agency -- it is a U.S. federal government agency that promotes U.S. business in other countries.

And an important aspect of USTDA's work includes the energy sector. Among Mr. Steingass's accomplishments, he has expanded USTDA investments in the sub-Saharan Africa and North African Middle East.

He has 20 years of experience in international development aid infrastructure projects, including stints with the Tennessee Valley Authority, USAID, and K&M Engineering.

He also holds graduate degrees from Harvard University and Cornell University. Please welcome Henry Steingass.

(applause)

MR. STEINGASS: Thanks, Tim, and good morning. I wish I had a graduate degree from Cornell, but that's my undergraduate degree. In

full disclosure, actually, listening to Jim's presentation earlier, I had a stint with Winrock International as well, back in the time when they were starting to form these renewable energy programs that were precursors to EEAF.

And I think it's true that normally USTDA, for the conferences put on by the Energy Commission, it's usually my counterpart for Asia, Geoff Jackson, because we see a lot of potential in the Asia region coming out of the California energy industry, and those people who are normally in the orbit of this meeting.

But I was struck listening to those couple of presentations I was able to hear yesterday afternoon, and this morning, how much there is potential from the industry looking at projects in the region I cover, which is Africa and the Middle East.

Among the regional directors at USTDA I probably have the deepest background in the energy sector, so I was also happy to be able to come for that reason too, and hear concepts like additionality talked about at the level they are now in these very sophisticated programs related to financing of renewable energy and greenhouse

gas reduction programs.

When I served at USAID I was their energy advisor for the Asia region, and this was in the early mid-90's, when we were trying to implement the U.S. governments commitment to the global environment facility at that time.

And so the fun that I had then, and the challenge, was to find projects in the Asia region where we could put U.S. government money to meet the commitments the U.S. government made to the GEF.

And so I developed these projects in India and the Philippines and Nepal that were trying to meet the additionality requirements. I would say my own progression has evolved into the superficiality with TDA. TDA is an agency that does do a fair amount in the power sector, but it operates in every economic sector.

And looking at the kinds of things that are being specifically talked about in this meeting, there are relevant things that our agency can do, but we are not at all experts, and my own understanding of the evolution of these projects has not kept pace at all. So I'm very interested to hear about those projects where you think our

agency might help with some upfront financing.

So I guess I would say another concept besides additionality and superficiality, for us, is initiality, where an agency that puts our money into the upfront project preparation stages. The feasibility studies typically, and that's how we're often known.

I wanted to give a few examples of projects where we have made investments. And these investments are typically in the multiple hundred thousand dollar range in the energy sector, power sector specifically.

And these, as you see are typical -- you can leave the lights the way they are, that'd be great, thanks -- conventional, on the edges of conventional. Typically our largest investments in power sector projects are generation projects that are in $50 million range and up, and it's good to see here people who have actually worked on USTDA-funded activities in a number of regions, knowing some of these power projects.

We have quite an appetite for projects that would meet an environmental mandate, a renewable energy development mandate, or clean energy. And these are some examples I pulled from

our recent funding history.

The Jordan Wind Project is an existing one and a half megawatt project in Jordan that the government wants to take private, and in doing so do a feasibility study for expanding it to approximately a 20 megawatt project. And that was signed, actually just today, in Amman.

These others at the bottom are ones in my region as well. We're open to consider feasibility studies for projects generally that have a minimum capital requirement of about $10 million, and a U.S. export potential of $5 million and up in renewable energy. But we can also consider other sizes.

The one at the bottom I put up here because it's one we funded this past year with a very large South African paper pulp processing company called Sappi. They actually are looking at application of a chemical recovery technology that's a U.S. technology.

Without knowing the parameters, part of the interest in that technology is the ability for it to be partially financed by emission eduction specialized funding. And we hear about this through the project sponsor coming to us.

It's the kind of project we would like to do more of, and we're not likely to concentrate our own thinking, our own resources, into developing a special initiative. But rather, we would try and advertise our interest, such that we could provide incentives to people like yourselves to bring such projects to us.

But we can touch a little more on those examples and others that may come from your own experience. TDA is a very small agency, we're based in Arlington, Virginia actually, we're not in Washington.

And the only offices we have overseas are Johannesburg, Ankara, Turkey -- which covers the, what we think of as the Caspian region -- and that's more related to bringing oil and gas resources out of the Caspian to Eurpone and the Mediterranean. And we have a regional office in Bangkok.

The regional offices, they have the job of getting us closer to project sponsors in the region. Such that we can start to consider funding projects at an early stage closer. Otherwise all our work done in the field is travel from Washington, and we do quite a bit.

TDA has two principle missions, and those are to support economic development in the countries where we are open. And the countries where we are open is 100 or so which are developing and middle income countries, up to $10,000 per capita income.

And we have to see the potential for the projects to use American goods and services. Our mandate is to promote U.S. company participation in development of the countries where we are open. So we work with a whole range of actors.

We work a lot directly with the U.S. business community who are bringing projects forward, working with a project sponsor in wherever. We work with the host governments to understand what their priorities are, and identifying the projects where we think U.S. companies could play a role.

We work with other U.S. government agencies that are involved in international project work. Those are, obviously, foreign service, state department officials in-country. They are commercial service -- Rasheed here is from the Department of Commerce in California.

The Department of Commerce maintains a

large staff -- many say not near large enough -- in countries around the world, of commercial officers whose job it is to promote U.S. trade with those countries.

But we work with agencies who are not foreign service. We work a lot, for example, with the Federal Aviation Agency, who work with aviation development in those countries. With the transportation department, as they try to implement new security mandates overseas.

But any U.S. government agency who has a legitimate role to promote development of a certain kind in countries where we are open, we will work with them if they have the information -- on projects, on contacts on entities operating.

What we find is we often know more than do our agencies who are not on the ground in those countries, but we will access some resources from U.S. government agencies.

But we're an agency whose mandate is much more to promote the private sector. The U.S. private sector working and developing in middle market countries, and the private sector in those countries.

That's not to say we don't work in

public sector projects. Our history has been much more in publicly financed infrastructure than it has been in private sector projects in countries where we work.

But more and more we're seeing countries move their own economic development strategy into the private sector. We endorse that, we promote it, it's something that -- if we had a preference that would be our preference. But we're fully open to consider public sector projects.

We're also an agency that is a grant funding agency. Jim talked about grants they have in the Solar Development Foundation, a very interesting program. He comes from an agency -- OPEC -- that finances actual U.S. company investment in emerging market countries. They put in equity investments, they put in loans.

We're a grant funding agency. We put in grant funds to feasibility study projects, and the only way they become a no-interest loan is if you happen to get put into our success fee program, which I'll talk a little bit about.

We also put our money into, besides projects, a number of things that might move certain developments forward. It can be technical

assistance on tendering a project, it could be a reverse trade mission to the U.S., it can be a confererence.

Some quick points. One way we measure our success is projects that evolve from the feasibility studies we fund, do they generate actual business, does the project get implemented on the one hand, and does it generate any U.S. exports.

And probably that's the simplest measure of success that we have historically had. It has, obviously, some political usefulness on Capitol Hill, because they like our agency because of what it does to promote the U.S. business community.

More and more we're being asked to also define our development success on the ground. Not just what is the value of projects that get implemented-- that's a very important measure -- but what impact does it have on stimulating economic development, what kinds of employment.

These are not areas where we have a long history of evaluating. An agency of 70 people doesn't have a lot of personnel resource to look into these things, but we're beginning to look at those impacts through contracts that we're

starting to write now.

We do ask for that kind of information more and more from companies that bring projects to us, just to help us with our own ability to put money against their interest.

In 2002 we spent just under $90 million. This year it's probably going to be in the $75 million range. Our funding comes from Congress every year, in an appropriation, approximately $50 million. But Congress also directs certain transfers be made to us to carry out special initiatives.

Those initiative sometimes have a regional focus, such as in southeastern Europe or ex-Soviet states. Regional mandates growing in the Middle East, for example. We are, I think, through our outreach and through some affinity the business community has for some of our programs we are increasing demand in all regions.

It's an area that, the increase in demand is forcing us to be a little bit tougher on projects we'd like to say yes to, but which we have to say no to because of availability of funds. That said, we're constantly looking to see if we can't expand our own pie.

So the primary tool that I think is relevant to people here today, and the business community, but often our foreign government project sponsors, is the funding of feasibility studies.

We grant our funds to a non-U.S. entity, so they can use our funds to contract with a U.S. expert, a U.S. firm that is going to help bring that project to implementation financing.

Our money does not actually go to the non-U.S. entity. It's a grant agreement that has a commitment of funds. And I'll quickly walk through the steps of a typical feasibility study.

But at the bottom here we also, I just want to mention that we do in the technical specific arena, where it's not project specific. There's a number of things we can consider doing, we're not excluded from any particular kind of activity.

But technical assistance can range from preparing a project for international tendering, where we think the tender itself is going to be an important way to bring U.S. companies into a project.

But we can step back further and do

technical assistance that's going to help, for example, with an element of the regulatory environment. Let's say private power regulations in a host country, or the telecomm sector, is one where we provide a fair amount of technical assistance in a similar kind of regulatory vein.

We now put more money in the transportation sector than in any other sector. I noticed, in the early mid 90's it actually was the power sector. Transportation infrastructure is largely dominated by public sector investments still, even though we've seen more and more interest at putting transportation infrastructure into private concessions.

Transportation means aviation, rail, port sector, roads -- although we don't do much in roads. The power sector is still an area where we put a fair amount of money, as I indicated with those project examples. And these are other areas where we also plan our money.

Any sector is open to us. Agriculture in my region is one that is, is one where we see more interest by governments, but also U.S. companies. We would like to see the ability to promote U.S. involvement in agriculture in Africa,

especially as Africa is trying to develop greater trade links with the U.S. under special legislation.

So working with these multiple mandates with any U.S. government agency, as our friends at multilateral agencies know, it drives us in different directions.

If you were to come to us with a clean energy, renewable energy project in a Middle Eastern country that had some benefit to security of transportation systems, and also promoted free trade agreement with that country, you could probably have the whole agency.

But it would certainly catch our attention on funding, what you're looking for funding for. But that said, we are still very much a project agency, and we try to look at the fundamentals of the project.

In the power sector it isn't just generation only, it's transmission, it's distribution, it's development of rural electrification sectors that could expand rural electrification development. So we're across the board in parts of the power sector and technologies in the power sector.

And these numbers indicate how active we are. I think the trend may be going slightly downward, but it is still a sector where we're quite active.

Competed versus sole-source feasibility studies. A competed study would be one where the Algerian government comes to us and they say they would like to do their first independent power plant project. And they asked for our help in doing the feasibility of the project and the tender process.

We agree, we provide six or seven hundred thousand dollars, which is a large amount for us, to technical assistance and feasibility studies tha's competed out to the U.S. private esecotr.

Our funds finance 100 percent of the activity, or close to it. In that case the Algerians put in a little money of their own. And it was one by Sargent & Lundy, out of Chicago. And there were five or six companies that bid on that set of activities.

A sole source project would be all of the renewable energy projects I showed on that earlier screen. A U.S. company comes to us with

endorsement by the Jordanian Ministry of Energy and Mineral Resources to be the company that does the feasibility study for expanding that wind project and taking it private.

In a sole-source project the company has to mobilize some of the financial resources needed for the study. Usually their own resources, but they can come from the Jordanian side. They can come from a likely source, it might be the Solar Development Foundation, is a creative way that we might go.

But a sole source is a company that wants to be on the implementation end as well. In order for us to go sole-source and not compete the project out to the U.S. private sector a cost share has to be present, and there has to be an endorsement to work with that company specifically.

When we make a grant we sign a grant agreement with the non-U.S. entity. That entity selects a U.S. company to do the feasibility or planning work. The U.S. company performs for the grantee, they are the client for the feasibility study.

And based on that client's approval of

the milestone parts of the project, we pay the invoices. So our funds go directly to the U.S. entity. And hopefully the project is able to take that study and move forward into implementation stages.

Rarely does it happen that the completion of a feasibility study leads directly to financing. You all have heard plenty about that, and know from your own experience how difficult it can be to actually move to financial close of a project. We try to assist with some other activities where we see a good role in-between feasibility completion and actual financial close.

Concerning the financing side of projects. When we're looking at things at the feasibility stage there's technical factors, there's economic factors, there's environmental factors that must be evaluated in every TDA-funded feasibility study.

But there is the financial viability. Criticism of TDA-funded feasibility in the past was that it often didn't have too strong or too specific of a financial reality focus. More and more that's being emphasized within the

feasibility studies, and in some cases as much as 35 percent of the scope of work relates to the financing side of the feasibility study.

But we do request to know what is the financial viability of a project. Where I used to work, K&M Engineering, the mantra from the chairman of the company, whenever the company was being asked by the client to look at feasibility and structuring the project, it was how is it going to be financed?

And even before applying the company's engineering expertise -- it was more an engineering firm than a financing firm -- the financing potential was always the thing looked at first when we were looking at independent power projects, a niche the company was active in.

That is not the dominant focus of U.S. TDA. Because we have multiple mandates to promote development in a range of sectors and a range of places we look at the viability of moving a project forward across a number of fronts, but more and more financing is becoming the leading aspect.

And so we specifically require targeting certain sources of financing in the feasibility

study. To learn about the different vehicles out there, which have been presented in this conference, is very important to us, because we would like to do more in the clean energy and the emission reductions area.

Despite the perceived hostility that the U.S. government has shown to Kyoto, there's a paradoxical push, through our agency and others, to do more in clean energy development in emerging markets.

So the reality of the financing vehicles that have been discussed here, and the analytical bases of them, are important to us. if a project is able to tap into those, in the energy sector or in non-energy sectors.

In fact, one of the interesting things for me to learn was how much support has gone into landfill projects, and methane reduction projects. Mike Brown here, from Brown and Vence, has worked on a number of feasibility studies that we have funded in North Africa related to solid waste management.

These are tough projects to do in that region, where there's a view toward private sector management as being something of a solution to how

projects will be implemented and financed. On the other hand there is often not any clear direction from that government on how those projects will be moved into the private sector.

The availablitly of financing that can look at ten percent of a financial requirement, if you will, is something that could be a very important deducement. So we would like to apply knowledge of that possibility to more projects.

Marc Stuart asked me if there was any potential interest at U.S.TDA at looking at a screening tool for renewable energy projects in the due diligence that we do. And I guess my reaction is we don't do enough projects that have our own screening tool.

We review projects on an individual basis, and every project we put funds into we hire an outside expert to review the project's viability.

And their due diligence job is to look into some of those bona fides that have been talked about here. It would be interesting to have a screening tool, but even if we made 20 investments a years in greenhouse gas reduction projects, or emissions trading type projects, such

a screening tool wouldn't be seen as useful to us beauce it's likely to be changing anyway.

But we go out to consultants, many of whom are known to you, to review projects for us in that field. These other tools that I'm showing on the screen, we probably put 25 percent of our funds every year into different technical assistance activities that I talked about, and business events.

Those events can be conferences, we just financed a conference in Nairobi at the end of April related to geothermal energy development in East Africa. That's an example of a quite sector- and region-specific conference, where we see enough potential business development, and there was interest by a number of parties, including the GEF, who put funds into it, the UN environment program.

We sponsored this conference to look at a range of potential developments in the Rift Valley of East Africa. And another conference that we financed in my region, the northern Africa/Middle East aviation sector development, where we do maybe 15 conferences each year as an agency, across all regions, across all sectors.

But they turn into good business events. We have not, to my knowledge, done any conference related to renewable energy development or clean energy, but it's not outside of consideration.

Orientation visits, or reverse trade missions, are much smaller business events where we will bring seven to a dozen project sponsors to the U.S. in a given area, typically they'll come from two or three countries to visit facilities, government entities, private companies, that are relevant to the development that they're planning.

So as an example, we did an orientation visit recently for some Ghanaian apparel manufacturing businesses that are springing up to respond to some new trade legislation.

Some TA examples in energy. Last year we granted funds to petro south africa, PetroSA, to look at how the natural gas industry in the eastern and southern cape region would develop based on natural gas offshore coming from a large gas field that's under development.

And that has helped result in PetroSA's decision to make an investment in this Ibuhesi gas field with Forest Oil of Texas and Colorado. In China we put our funds, and U.S. industry put some

funds, into development of a natural gas institute, to look at some of the industry-government kinds of cooperation mechanisms that could help in the Chinese industry.

And I mentioned geothermal in East Africa. We're working now with the Global Environment Facility to collaborate with money on bringing more projects forward in that region into development.

So our funds could be used to help negotiate the main project agreements in a project in Djibouti, for example, where we funded feasibility. Or it could be used to do project pre-feasibility or feasibility study. We have, we're open to a lot of activities to support things in an area like that.

Some of you may have picked up this brochure out there. The best way to bring projects to TDA is to contact the regional staff for where you're project is located. And we're very easy to contact by e-mail. It's just -- mine is hsteingass@tda.gov. Any of the regional staff that you see on the last page, it's first initial, last name.

It's really the most practical way to

approach us. Because we're regionally focused we tend to be consumed by what we're doing in our own region, so when Tsai Maidev told me about a project in Honduras, in geothermal, that USTDA was going to be financing, it was completely news to me.

But it was interesting to learn too that it's not coming through our own funds, directly from the TDA, but from the InterAmerican Development Bank. We have funds at the InterAmerican Development Bank, the IFC, and the World Bank in what we call trust funds.

And those are for use by those banks when they see the need for a U.S. consultant to help bring a project through their own development process. So our Latin America team will be happy to hear about that Honduras project.

With that, I think I'll stop. I see Tim here urging me to finish up, and I'll be happy to take a few questions.

(applause)

MR. OLSON: So are there any questions?

MR. CHIRIELDSON: Anthony Chirieldson. I just have a quick question, what is the size of the grant that you do give out. Is there a

typical range, 20,000-100,000, 100,000-200,000?

MR. STEINGASS: Typical grants are two to -- the average is, I think last year, in feasibility studies, was $340 or $360,000. It's driven by the project need, and limited by what our budget can handle.

Typically, if we receive a proposal for a project that needs a $2 million feasibility study, and we're interested in the project but we cannot finance that size feasibility study, or very rarely even half that, we start looking at the critical pieces where our funding can work and is important to the project sponsor.

But they do range. The lowest cost feasibility study in my region this past year was $65,000, the highest was $675,000. It really depends on the project. The EuroAsian region, which does a fair amount related to pipeline studies for Caspian oil and gas, million dollar feasibility studies are not that uncommon. So it really depends.

I would just add to that -- Marc Stuart had asked me if some element of a feasibility study that's looking at the potential to apply specialized financing would be attractive. My

answer was the whole feasibility study is attractive to us.

The $40,000 needed to look at that element of the project's feasibility study is not worth it to us, if you will. We'd rather look at the entire feasibility study, just because of the work involved in each action. U.S.TDA funded 132 feasibility studies last year, and to do that there was a total of about 500 actions that we took, where we spent the money to do due diligence and do other things.

So we're not interested in pieces of feasibility studies, unless that piece is large in and of itself. Yes, sir?

MR. MARSHALL: I'm Dennis Marshall with Team China, and we're going to do nine wastewater treatment plants in China. We're going to bundle them together, and we're interested in the TDA grant program.

And I wondered -- you said that it could be a no-interest loan if it was under the success fee program. Could you just tell us the success fee program, what that means?

MR. STEINGASS: Thank you for reminding me. The success fee program is one where, in the

sole source program only, the company that brings the project to us is likely, hopes to be a beneficiary of the project's implementation.

So if you did the feasibility study, and you were then on the implementation side in a significant way, out of the revenues that you would receive from implementation a small percentage would be tapped to pay back to TDA the grant amount.

It's typically targeted at two and a half percent, but it has ranged from half a percent to five percent. The objective is not to ping the project stream of revenues in such a way to make the U.S. company uncompetitive in bidding for the implementation, but to take a reasonable part of that where the company is going to benefit financially, to pay back the U.S.TDA grant amount.

MR. MARSHALL: Pay back over time, or over --?

MR. STEINGASS: Yes, over time. And the time period is eight years from the time that we make our grant commitment, so in actual implementation it's often five or six year time period. It's quite reasonable, and if the company makes the case for why we should look at a lower

amount of repayment we look at that. We really try to tailor it to the project realities.

Okay, thank you very much.

MR. OLSON: Okay, we're coming to our last speaker, which is me. Actually, I want to shorten my presentation, because I want to give a chance to discuss our survey with the survey contractor who did the analysis.

I'm going to briefly just highlight a couple of things. By the way, any presentations that were amended or those that you did not have where you did not have the actual copies, we'll put that in our final proceedings and send that to you, probably on a CD I imagine.

I just want to mention a couple of things that the California Energy Commission is doing in our International Program. And I'm going to focus mainly on our financing type of work. We have our own pre-investment funds. Some of the company's here, the representatives, have received that money.

And it's very similar to the U.S. TDA fund, except we have a lot less money. And if you consider the development stream we're at the earliest stage imaginable, meaning in the concept,

in what we call pre-feasibility.

We've been conducting this program for over ten years, we currently have 40 active projects. Many of them tend to be two to five year durations. Again, we're in the early stages. We provide -- and it's not a lot of money -- we provide $25,000 per project for these early stage developments.

And we then seek sources of financing for many of the other stages, we help you do that. One of my goals is continually trying to connect up our money with other organizations and investors who do other stages of investment -- mezzanine financing, and the long-term project financing.

Our success ratio is pretty good from our stage, from the stage we're working in. Over $500 million in successful projects. The average size is about $5 million in terms of capital cost of the eventual hardware on the ground. Mostly some kind of energy saving or energy producing project.

Of the projects that come forward to us, about 30 percent end up being a realistic project, from the point of the concept stage. And we think

it will be even better than that, because an additional 30 percent of the money that we award to companies never gets spent.

And usually because of some kind of corporate addition or corporate change -- change in their management or whatever. And they give the money back to us, they don't spend it.

Unfortunately, in our state government system we can't re-spend that money if it comes back to us -- I wish I could -- so we think our success ratio would be higher if we were able to reflect that factor.

But it comes down to, our measurement is what actually happens from the project compared to the amount of money we put into the effort. And it's a 37 to one return in terms of our total investment over the time frame of ten years. That does not include the private sector investment or other organizations that put money into it.

Quite often we like to work with U.S.TDA on our projects. There's a natural fit, we tend to fund pre-feasibility work. The result tends to be a defined project where we're covering some of the due diligence requirements. Many of them go to TDA after they receive our funding, and proceed

through the development steps.

Quite often we're connecting up with equity funds and other multilateral development banks and others, just to try to stimulate the followup work.

We do this on a solicitation basis. We just started funding for about ten projects about a month and a half ago. We featured a lot of work in Mexico during this last round. We're expecting another solicitation this fall, and we tend to work in developing countries. Latin America and Asia tends to be the focus of most of our work.

And we're not limiting our work to those areas, it's just how the proposals come in, mostly Latin America and Asia and the developing countries.

Some examples, Jim Walker's original project -- you remember he spoke yesterday representing SIIF Energies and enXco. One of his original projects in Greece in the mid-90's was originally stimulated by our fund. He used our money to obtain an exclusive right for this development sight on the island of Crete.

And then when he got that he shopped around and built his team. And we provided some

other funding to get him started on the first phase. That resulted in a 16 megawatt power plant.

There are some other things that occurred out from that, from other projects, and there are some other funds that picked up on his -- once he got into development on his first project he started attracting capital from other sources. And that's what we like to see, that kind of success..

So that's a big financial, if you call it financial. We consider it a pre-investment fund, and we like to consult to people. They can talk to us in advance of our solicitation and we like to do followup type of work where we're helping to identify sources of capital once the project's defined.

Some of the documents you picked up here may have reflected that work. We had two hard copy documents. One, project financing sources for projects in Mexico, and a companion for projects in China.

We completed a handbook a couple of years ago, and I was kind of debating whether to include that in this package of material, and it

looking over it I think it's still valid today. We didn't see a need to change any of that. And it's a real good self-test if you're looking at where you are in the development stream, and whether your project is ready for financing.

There's a real good self-test in that. Many project developers have used that, in some cases after the fact, and a lot of that work was developed by Dan Potash and his company for us, under contract.

We also provide consultations to companies to help them get introduced to financing sources, whether it's project financing or venture capital. And some of our other efforts involve our direct efforts to find projects in other countries.

Sometimes we use an energy audit process, sometimes we use scouting missions. Quite often we work with other agencies, U.S. Department of Commerce, U.S.TDA, U.S.AID when we're doing that. And we also conduct conferences like this one, either in the U.S. or other countries.

Sometimes we do education seminars to stimulate project opportunities, such as our

planned efforts in Mexico to educate people who are in the energy business, they're in the manufacturing and industrial sectors in Mexico who are candidates for energy efficiency improvements or cogeneration projects in their facilities.

And we go through educational seminars to explain what those prospects might be, the cost, what the procedures might be. And we use that to stimulate project development with companies from California.

In addition, we do our target market surveys, and there will be a presentation this afternoon on the energy efficiency, it's a worldwide energy efficiency target market study.

I think you'll find it provides some very good insights on where there are prospects, down to the sectoral level. That'll be presented by Alexander Richold this afternoon.

And what I'd like to do now is have Len Chapman do a short presentation of some of the findings of our survey, which we do every couple of years. Some of you in the audience responded to that survey.

We had 152 companies respond We're looking at things like how well you're doing in

entering international markets, what kind of barriers your facing, any type of preferred target markets and sectors tha you're looking at, and impacts and trends that influenced trade in the international energy sector.

And then we have a section on evaluating how well we have done to help stimulate that. And I'd like to introduce Len Chapman with Organization Architects and Associates, which is a specialized survey company, to give some overview comments on that survey.

So Len, if you'd join me up here. I'd like to introduce Len Chapman.

MR. CHAPMAN: Well, thanks, Tim it's really nice to be in San Francisco again. I came down this morning from Sacramento, it took me about four hours with all the traffic. Each time I come down it seems like I take a little longer. So I leave a little bit earlier, and it doesn't seem to make any difference.

Anyway, since we're a little bit over time, I plan to hold my comments to about ten minutes. So we're really going to hit the high points of the energy technology export Program's 2003 Energy Industries Survey, which has been

conducted in the last several months.

The questionnaires went out in early April of this year, and came back during the period of April, May and June. I did the analysis and put the report together in July and August, and everything has been turned over to Tim and his organization for use here in this conference to a certain extent, but from what I understand you're going to be getting copies of the slide presentation I'm going to make here now.

And also, on the CD that's being distributed there's a full copy of the 65 page report that goes along with this survey.

So here's what we're going to do, here's the plan for the next ten minutes. Really, five highlights that we're going to hit, features of the survey, some general information, focus on some of the findings, the key findings -- and we categorized those findings in terms of world trends, market opportunities, and barriers that have impact on international business.

And then finally, a new feature that was introduced this year in the survey was we actually did some -- in addition to analyzing the total response group, the total 152 firms that responded

-- we did break down into certain smaller groups, and we did some analysis of the other groups.

Now I'll be sharing just a very small bit of that with you. But if you're interested in getting more information on that, the best resource would be the full report.

For your information, we received, as Tim said, 152 surveys back. We actually sent out 610, so we had about a 25 percent return rate, which for this type of survey is pretty good. It took quite a bit of followup to get to that rate, but with the followup that Tim's organization did, and I did some of the followup, we were able to get the number up to 152.

The three primary survey purposes, as defined by CEC before the survey, were as indicated up here. The idea was to collect information from the California energy firms in order to strategically implement high value programs, continuously improving the programs that are presented to you, the high valued programs.

The second one, to develop new activities based on suggestions from industry, because we ask a lot of suggestion questions, and support those markets that are most in need of

support and assistance.

We studied the various impacts on a number of world trends on international business, and this slide -- actually we studied 11 key trends, this slide focuses on the three trends with the most positive impact on international business, and those are the three to the left.

The energy technology advances, new technology maturity, transition of foreign countries to democratic styles of government, and greenhouse gas emissions and global climate change. Those trends were reported as having the largest positive impact on energy international business.

And on the reverse side of that, the two that seemed to have the most negative impact on international business are the two on the far right, worldwide economic lethargy and terrorism impact.

We also studied market opportunities, first by countries, and then we looked at countries within the technologies. This slide indicates the diagram of number of times that the countries were mentioned.

The question we asked was, for each of

the firms to select up to six countries that are important to future export goals. And this slide summarizes those responses, indicating that Mexico, China, Canada, India, and Malaysia are those international markets opportunities that received the most response.

Now the next three slides may be a bit difficult to see from the far back, but these again are repeated in the report, and also in the material that will come with this presentation.

The question here was asked -- each of the firms were asked to select the project opportunities types that they have identified for the countries that they have listed.

And again, the numbers indicate the number of responses that came back. And as you'll look across the top, it indicates the technology involved, and the responses again that were received by those particular countries.

So for energy efficiency there were 22 responses for Mexico, 15 for China, and 11 for Canada. For geothermal and the others listed here, again the responses are indicated.

And the final three -- I've got to refer to my notes on the pronunciation of the first

one -- photovoltaic, is that correct? Okay, I've been having trouble with that one. But here we're looking at photovoltaic, solar, thermal, and wind. Again, Mexico topping the responses.

We next looked at barriers that impede international services and products. There were 16 pre-identified barriers, and they're represented by all of them, except the first one. The first one, that came in with the highest rating, was a response of what other barriers exist.

And the items that were mentioned in the other category include fear of new technology, risk of payment, and copy of products, corrupt business practices, political aspects, and export shipping -- as significant barriers to exporting goods and services.

The 16 pre-identified barriers are also listed, and I've highlighted just a few of them. The first one was the lack of project financing with competitive terms, unsupportive regulatory institutional policies, and the cost of seeing projects through to completion.

In addition to studying the total response groups, we looked at nine different

breakout groups.

Specifically, for each breakout group we studied types of projects the groups focused on, and worldwide trend and barrier impacts on each of the groups' reporting.

Here are the nine breakout groups we studied. We defined small firms as those with annual gross revenues under $5 million, medium firms between $5 million and $50 million, and large firms with annual gross revenues of over $50 million.

However, for this presentation we have provided information on findings for the energy efficiency group only, and this is an effort of saving some time.

We collected information on the breakdown of projects between the private and public sectors. We found the private/public split to be 64 percent and 29 percent respectively.

This is in significant contrast to the large firm split, which is just about the reverse, 30 percent and 67 percent respectively.

This slide indicates the relative impact of three positive global trends on the development of international business, as compared to the

total response group, the 152 responders.

The 1.4 rating for the energy technology advances, new technology maturity trend, is statistically significantly higher than the rating received by all other firms.

It doesn't look much higher, but because of the fairly large returns in each of those groups it turns out to be significantly higher. And the 0.7 rating for the transition of foreign countries to democratic styles of government is significantly lower than the all firms rating.

Here is a comparison of energy efficiency firms and the total response group for three significant barriers to international exporting.

The only significant difference between the energy efficiency firms, shown here, and all firms shown is in the cost of seeing projects through to completion barrier, where the energy efficiency rating is 3.9, and the all other rating is 3.8.

So we have shared with you some information from the 2003 study. And again, as I mentioned earlier, if you desire additional insight, please refer to the 65 page report that

is included in the conference CD.

And that concludes my remarks, thank you for listening this late in the morning. I think it's past morning, and we're in to the afternoon.

(applause)

MR. OLSON: Let's see if we have any questions. We might have time for one or two questions if you have any?

And, I guess in the interest of time we'll continue on and close this part of the conference. I appreciate your interest in staying here and listening to this morning's session.

What we will do, we'll break for lunch -- again, I think several of us are signed up for the box lunches. And we'll reconvene in this room this afternoon for our DOE APEC event. And that starts at 1:30.

And I think what we're asking, if those of you here are interested in that we're asking you to sign in at the registration again, for the purposes of that conference.

And that closes our conference. Thank you very much.

(applause)

(Therefore, at 12:14 p.m. the conference was

adjourned.)

CERTIFICATE OF REPORTER

I, ALAN MEADE, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Conference; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of October, 2003.